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EXAMINER
MULL, FRED H

ART UNIT	PAPER NUMBER
3662	

DATE MAILED: 04/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/993,108	ZHAO, YILIN	
	Examiner	Art Unit	
	Fred H. Mull	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 13-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 13-23* is/are rejected.

7)☒ Claim(s) *3, 9, 20, 22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This action is nonfinal due to the new grounds of rejection for at least claim 1.

2. The method steps in claims 1-14 are interpreted by the examiner as occurring wholly in the satellite positioning system receiver.

3. The preambles of all the claims are interpreted by the examiner as limitations to the respective claims.

Drawings

4. In regard the object to Fig. 4 in paragraph 1 of the previous action, applicant argues that a 3D position inherently includes altitude. This is true, but it does not address the point of the change, which is to allow someone looking at the drawing to be able to follow the various types of altitudes. From step 410, the course altitude is being retrieved from somewhere, from step 430, the reference altitude is being determined from something known. Step 440 then brings in a derived altitude, and it is not clear from the drawing that this comes from the estimated 3D location in step 420. The examiner would like to suggest the following changes (modified from the last action): (1) Change the description in 420 to --Estimate 3-dimensional location, including a derive altitude, based on coarse altitude--, and (2) Change the description in 460 to --Determine new 3-dimensional location based on reference altitude--. Changing the with's to based on's is to make clear that the altitude being referred to is used to determine the location, and that it is the altitude that is part of the 3D location.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities:

On p. 5, line 7, "2-dimentional" should be changed to --2-dimensional--.

Appropriate correction is required.

Claim Objections

6. Claim 3 is objected to because of the following informalities: In line 3 of the claim, --and-- should be inserted before "determining". Appropriate correction is required.

7. Claim 9 is objected to because of the following informalities: In line 3 of the claim, --and-- should be inserted before "determining". Appropriate correction is required.

8. Claim 20 is objected to because of the following informalities: In line 7 of the claim, --and-- should be inserted before "determining". Appropriate correction is required.

9. Claim 22 is objected to because of the following informalities: In line 3 of the claim, --and-- should be inserted before "determining". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 1-11 and 13-23 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant claims determining a derived altitude. However, applicant's discussion of how this is done (p. 5, 2nd paragraph) does not describe how this is done. All that is described is that, when only a 2-dimensional solution is available, the derived altitude is set equal to the coarse altitude. Is this the extent of the scope to which these claims are meant to cover? If not, then how does one get from a coarse altitude to a derived altitude? Fig. 4 states that an estimated location is an intermediate step, by how does one get this estimated location from the course altitude, and then how does one get the derived altitude from the estimated location?

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear if the "3-dimensional estimated location" is the same thing as the "estimated location" or something else entirely. And if it is something else entirely, then where does it come from?

12. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear if the "3-dimensional location" is the same thing as the "estimated location", the "new location", or something else entirely. And if it is something else entirely, then where does it come from?

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

13. Claims 6 and 10-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Fernandez-Corbaton.

In regard to claim 6, Fernandez-Corbaton discloses determining an estimated location of the receiver (column 6, lines 63-66; column 8, lines 53-55); determining a reference altitude of the receiver based upon the estimated location of the receiver (column 6, line 54 to column 7, line 23); and determining a new location of the receiver based upon the reference altitude (column 7, lines 36-47).

In regard to claims 10-11, Fernandez-Corbaton further discloses determining the new location at the receiver based upon the reference altitude of the receiver (column 7, lines 36-47) and terrain slope information (column 8, lines 53-55), where both the reference altitude and the terrain information is used in the chain of calculation to determine the new location.

14. Claims 6 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Nelson.

In regard to claim 6, Nelson discloses determining an estimated location of the receiver; determining a reference altitude of the receiver based upon the estimated location of the receiver; and determining a new location of the receiver based upon the reference altitude (column 3, lines 9-19), where the estimated location is the last full four-satellite fix location, this being estimated to be close enough that the reference altitude can be taken as the altitude from this estimated location, and the new location then being determined on the basis that this reference altitude is taken as its new altitude. The examiner believes it is appropriate to interpret a "determining" step as just setting a new value (here the reference altitude) equal to a previously known value (here the estimated location altitude) based on the discussion of the 112 1st paragraph rejection above, where the only enabled method of a "determining" step involves setting one value equal to a previously known value.

In regard to claims 11, Nelson further discloses determining the reference altitude of the receiver based upon the estimated location fix altitude (column 3, lines 9-19).

15. Claim 6 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by the CompactGPS Product Overview.

The CompactGPS Product Overview discloses determining an estimated location of the receiver; determining a reference altitude of the receiver based upon the estimated location of the receiver; and determining a new location of the receiver based upon the reference altitude (p.2, indicated by the arrow), where the previous 3D position is estimated to be the current position

such that the reference altitude is set equal to the altitude of the estimated location, and then a new altitude is determined based on this altitude.

In regard to claim 11, the CompactGPS Product Overview further discloses determining the reference altitude of the receiver based upon the estimated location fix altitude (p.2, indicated by the arrow).

16. Claim 6-11, 13-14, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Odagawa.

In regard to claim 6, Odagawa discloses determining an estimated location of the receiver; determining a reference altitude of the receiver based upon the estimated location of the receiver; and determining a new location of the receiver based upon the reference altitude (column 9, line 64 to column 11, line 18; S50, S54, Fig. 4A).

In regard to claims 7 and 10-11, Odagawa further discloses determining the reference altitude of the receiver by using the estimated location to index the reference altitude in a map database (column 10, line 18 to column 11, line 18).

In regard to claim 8, Odagawa further discloses determining the estimated location of the receiver based upon a coarse altitude of the receiver (column 9, line 67 to column 10, line 3), where the coarse altitude is what Odagawa calls the "reference altitude".

In regard to claim 9, 13-14, and 22, Odagawa further discloses determining a derived altitude from an estimated location of the receiver, determining a new location of the receiver if a difference between the derived altitude and the reference altitude if the receiver is outside an

altitude threshold (column 10, lines 35-60), where the derived altitude is the tentative elevation value.

17. Claim 6-7, 10-11, and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Okude.

In regard to claim 6, Okude discloses determining an estimated location of the receiver; determining a reference altitude of the receiver based upon the estimated location of the receiver; and determining a new location of the receiver based upon the reference altitude (column 2, lines 12-50; column 9, lines 7-58).

In regard to claims 7 and 10-11, Okude further discloses determining the reference altitude of the receiver by using the estimated location to index the reference altitude in a map database (column 9, lines 7-58).

In regard to claim 22, Okude further discloses the estimated location is a previously generated 3D location of the receiver, computing a derived altitude from the 3D location (equations 1 and 2) and determining the reference altitude of the receiver from the derived altitude (equation 3).

18. Claim 1, 3, 5-7, 9-11, 15-16, and 19-21 are rejected under 35 U.S.C. 102(e) as being anticipated by van Diggelen.

In regard to claim 6, van Diggelen discloses determining an estimated location of the receiver; determining a reference altitude of the receiver based upon the estimated location of the receiver; and determining a new location of the receiver based upon the reference altitude

(column 2, lines 24-46), where van Diggelen determines a plurality of estimated locations and a plurality of reference altitudes are determined, each based on one of the estimated locations. However, since "comprising" is used, it does not matter that other unclaimed steps exist, such as determining a second estimated location, a third, etc.

In regard to claims 1 and 15, van Diggelen further discloses transmitting the estimated location to a network, receiving from the network altitude information based upon the estimated location of the receiver (included in the portions of the terrain model), and determining a new location of the receiver at the receiver based upon the altitude information received from the network (column 2, lines 44-46), where, in order to download portions, the mobile would have to determine what portion to download, and that would be based on the set of positions it was looking to par down.

In regard to claim 3, van Diggelen further discloses determining a derived altitude based upon the estimated location of the receiver (the average altitude), the altitude information from the network including a reference altitude, and determining the new location of the receiver if a difference between the derived altitude and reference altitudes of the receiver is outside an altitude threshold (column 5, lines 13-25).

In regard to claims 5, 7, 10-11, and 16, van Diggelen further discloses determining the reference altitude of the receiver by using the estimated location to index the reference altitude in a map database (column 3, lines 49-58; column 5, lines 13-25).

In regard to claim 9, van Diggelen further discloses determining a derived altitude from an estimated location of the receiver (the average altitude), determining a new location of the

receiver if a difference between the derived altitude and the reference altitude of the receiver is outside an altitude threshold (column 5, lines 13-25).

In regard to claim 19, van Diggelen further discloses determining the new location of the receiver at the network (column 7, lines 61-63).

In regard to claims 20-21, van Diggelen further discloses the estimated location is a 3D location fix, determine a derived altitude from the estimated location (the average altitude), transmitting satellite information used to determine the 3D location fix of the receiver to the network, determining a difference between the derived altitude and the reference altitude and, determining a corrected location of the receiver based upon the satellite information and the difference (column 7, lines 57-64).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

19. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fernandez-Corbaton.

In regard to claim 7, Fernandez-Corbaton further discloses determining the reference altitude of the receiver by using the estimated location to index the reference altitude in a map database: "An estimate of the altitude of the mobile station may be available from terrain information" (column 8, lines 53-55). The terrain information would have to be indexed by the estimated location, and, by giving an indication of some property of the layout of the land (in this case the altitude) as a function of location, it is in a format that most people would call a map.

Fernandez-Corbaton does not specify where this terrain information is stored and where this determination occurs. It would have been obvious to one of ordinary skill in the art that this could occur in the satellite positioning receiver, in order to implement the method of Fernandez-Corbaton.

Even if it is not inherent that "An estimate of the altitude of the mobile station may be available from terrain information" designates something that can be called a map, it would be obvious to use a terrain map to provide the altitude information as a function of location as described by Fernandez-Corbaton.

20. Claims 6-7, 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheynblat (US 6,061,018 A) in view of IDS Document Krasner (US 5,841,396 A).

In regard to claim 6, Sheynblat discloses determining an estimated location of the receiver (column 9, lines 30-33; 301, Fig. 5); determining a reference altitude of the receiver based upon the estimated location of the receiver (column 9, lines 33-38; 303); and determining a new location of the receiver based upon the reference altitude information received (column 9, lines 48-49; 305).

Sheynblat fails to disclose these steps occurring in the receiver. Instead, Sheynblat discloses forwarding receiver pseudoranges to a network location, where the processing occurs (column 9, lines 30-33).

Krasner discloses three alternate methods of GPS positioning (column 4, lines 20-39), including forwarding receiver pseudoranges to a network location, where the processing occurs (column 4, lines 23-39) and the processing occurring completely within the mobile device

(column 4, lines 27-32). Krasner further teaches that a receiver designed to use one of the methods can be adapted to use either of the other two methods (column 4, lines 47-53).

Therefore, one of ordinary skill in the art, looking at the invention of Sheynblat in view of this teaching of Krasner, would recognize that Sheynblat could be adapted to allow receiver only positioning, without the requirement of being connected to a wireless network. It would have been obvious for this one of ordinary skill in the art to make this adaptation in order to determine user prediction when wireless communication services are unavailable, such as when the user is outside the range or a network cell, or when one does not currently have wireless communication service. It would also have been obvious to make this adaptation in order to conserve wireless bandwidth in the network for actual conversations among human beings, which cannot be made to occur strictly in a single receiver device. Additionally, not all service providers have chosen GPS positioning for their positioning technology, so, where the user is roaming, some cells will not have GPS servers to communicate with. It would additionally have been obvious to make this adaptation in order to allow the user to determine their position when they are roaming in non-GPS-enabled networks. It would additionally have been obvious to make this adaptation in order to determine their position when the wireless bandwidth is full and a connection is not available. This situation can occur in an emergency situation, and it may be considered important for the user to be able to determine their position relative to a hospital when the user requires medical attention, but cannot get an open channel to 911 due to overtaxed wireless and wireline bandwidth caused by the emergency situation, requiring the user to proceed to the hospital on their own. Additionally, some citizens have privacy concerns about having their coordinates stored (at least temporarily, for the purposes of calculation) in a big database

where 'big brother' can potentially access them and record them. These citizens would not buy positioning devices unless they can determine position on their own, and will not forward their position unless they so choose to, such as during a 911 call. It would have been obvious to make this adaptation in order to provide positioning service to privacy oriented citizens.

In regard to claim 7 and 10-11, Sheynblat further discloses determining the reference altitude of the receiver by using the estimated location to index the reference altitude in a map database (column 9, lines 35-38).

21. Claims 1, 5, 15, 16, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fernandez-Corbaton in view of van Diggelen.

van Diggelen discloses transmitting the estimated location to a network, receiving from the network altitude information based upon the estimated location of the receiver (included in the portions of the terrain model), and determining a new location of the receiver at the receiver based upon the altitude information received from the network (column 2, lines 44-46), where, in order to download portions, the mobile would have to determine what portion to download, and that would be based on the set of positions it was looking to par down.

It would be obvious for the receiver to be able to access the terrain model over a network in order to reduce the amount of storage space in the receiver, thereby reducing the cost, and in order to provide real time altitude data, because hills get bulldozed over, inlets get land-filled, etc.

22. Claims 1, 15, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson in view of van Diggelen.

van Diggelen discloses transmitting the estimated location to a network, receiving from the network altitude information based upon the estimated location of the receiver (included in the portions of the terrain model), and determining a new location of the receiver at the receiver based upon the altitude information received from the network (column 2, lines 44-46), where, in order to download portions, the mobile would have to determine what portion to download, and that would be based on the set of positions it was looking to par down.

It would be obvious for the receiver to be able to access the terrain model over a network in order to reduce the amount of storage space in the receiver, thereby reducing the cost, and in order to provide real time altitude data, because hills get bulldozed over, inlets get land-filled, etc.

23. Claims 1, 15, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the CompactGPS Product Overview in view of van Diggelen.

van Diggelen discloses transmitting the estimated location to a network, receiving from the network altitude information based upon the estimated location of the receiver (included in the portions of the terrain model), and determining a new location of the receiver at the receiver based upon the altitude information received from the network (column 2, lines 44-46), where, in order to download portions, the mobile would have to determine what portion to download, and that would be based on the set of positions it was looking to par down.

It would be obvious for the receiver to be able to access the terrain model over a network in order to reduce the amount of storage space in the receiver, thereby reducing the cost, and in order to provide real time altitude data, because hills get bulldozed over, inlets get land-filled, etc.

24. Claims 1-5 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Odagowa in view of van Diggelen.

van Diggelen discloses transmitting the estimated location to a network, receiving from the network altitude information based upon the estimated location of the receiver (included in the portions of the terrain model), and determining a new location of the receiver at the receiver based upon the altitude information received from the network (column 2, lines 44-46), where, in order to download portions, the mobile would have to determine what portion to download, and that would be based on the set of positions it was looking to par down.

It would be obvious for the receiver to be able to access the terrain model over a network in order to reduce the amount of storage space in the receiver, thereby reducing the cost, and in order to provide real time altitude data, because hills get bulldozed over, inlets get land-filled, etc.

25. Claims 1, 5, 15, 16, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okude in view of van Diggelen.

van Diggelen discloses transmitting the estimated location to a network, receiving from the network altitude information based upon the estimated location of the receiver (included in

the portions of the terrain model), and determining a new location of the receiver at the receiver based upon the altitude information received from the network (column 2, lines 44-46), where, in order to download portions, the mobile would have to determine what portion to download, and that would be based on the set of positions it was looking to par down.

It would be obvious for the receiver to be able to access the terrain model over a network in order to reduce the amount of storage space in the receiver, thereby reducing the cost, and in order to provide real time altitude data, because hills get bulldozed over, inlets get land-filled, etc.

Response to Arguments

26. In regard to claim 6, applicant argues that Fernandez-Corbaton does not disclose or suggest determining a reference altitude of the receiver based upon the estimated location of the receiver; determining a new location of the receiver based upon the reference altitude (p. 23, lines 17-20). The examiner disagrees. Fernandez-Corbaton starts with a first altitude (column 6, lines 47-48). Fernandez-Corbaton then estimates the location of the receiver, where this estimate may be a previous location fix (column 6, lines 63-66; column 8, lines 53-55). Fernandez-Corbaton then linearizes the first altitude to produce a second altitude, the linearized altitude, which is the reference altitude (column 6, line 54 to column 7, line 23). Fernandez-Corbaton then determines a new location of the receiver based upon the reference altitude (column 7, lines 44-47).

In regard to claim 10, applicant argues that Fernandez-Corbaton does not determine the reference altitude by using the estimated location to index the reference altitude in a map

database (p. 23, lines 22-24). However, Fernandez-Corbaton discloses: "An estimate of the altitude of the mobile station may be available from terrain information" (column 8, lines 53-55). The terrain information would have to be indexed by the estimated location, and, by giving an indication of some property of the layout of the land (in this case the altitude) as a function of location, it is in a format that most people would call a map. For example, Theunissen calls a database that contains altitude information as a function of location a "terrain altitude map". Applicant additionally argues that Fernandez-Corbaton makes no reference to the terrain map determination occurring in the satellite positioning receiver (p. 23, lines 24-25). However, one of ordinary skill in the art would consider where to place this feature, and satellite positioning receiver is one place that would be obvious to place it, in order to implement the method of Fernandez-Corbaton.

27. The examiner also finds the following reference(s) relevant:

Harris, who teaches that there are privacy oriented citizens who want positioning receiver which will not potentially provide their location to 'big brother' without their consent.

Lemelson, who teaches that there are privacy oriented citizens who want positioning receiver which will not potentially provide their location to 'big brother' without their consent.

Avila who teaches a Digital Terrain Elevation Data database that includes terrain slope information.

Beason, who teaches a receiver having a topographical map.

Parker, who teaches an altitude database in a GPS receiver.

Fuchs, who teaches a terrain model may be stored in a database accessible by a server.

Applicant is encouraged to consider these documents in formulating their response (if one is required) to this action, in order to expedite prosecution of this application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred H. Mull whose telephone number is 703-305-1250. The examiner can normally be reached on M-F 9:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on 703-360-4171. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

Fred H. Mull
Examiner
Art Unit 3662

FHM
April 8, 2003

Thomas H. Tarcza

THOMAS H. TARCZA
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